User's Manual

DEFENDER™ SECURITY

82-12890 USER'S MANUAL

8-Channel Standalone DVR

Installation Guide & User's Manual

Version 2.41

DEFENDER™ SECURITY
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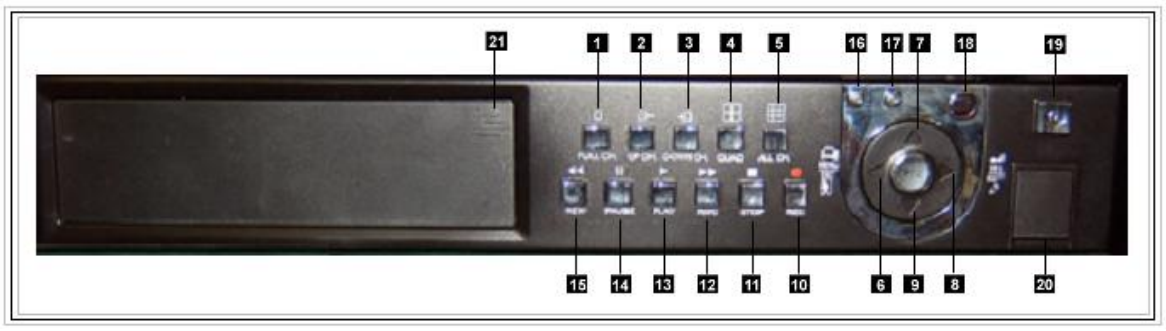
1. DVR Feature

- 8 Channel BNC Camera Input
- 2 Channel BNC Monitor Output
- Support Network: Static, DHCP, PPPOE
- USB 2.0 Port For Backup And Playback With PC
- VGA Output (Optional)
- NTSC / PAL
- Video Loss Alarm
- Motion Detection With Area Setting
- PTZ Control With RS485 Port.
- 8 Sets NO/NC Sensor Input
- 1 Alarm Output (2A 28VDC / 2A 125 VAC)
- Two ATA-100 Hard Disk Interface, Support Over 500G Byte
- Time Schedule Record / Sensor Triggered Record / Motion Triggered Record/Motion and Sensor Triggered Record
- IR Remote Controller
- This DVR is provided with double function. That means when it's recording, user can play back or handle menu bar simultaneously.

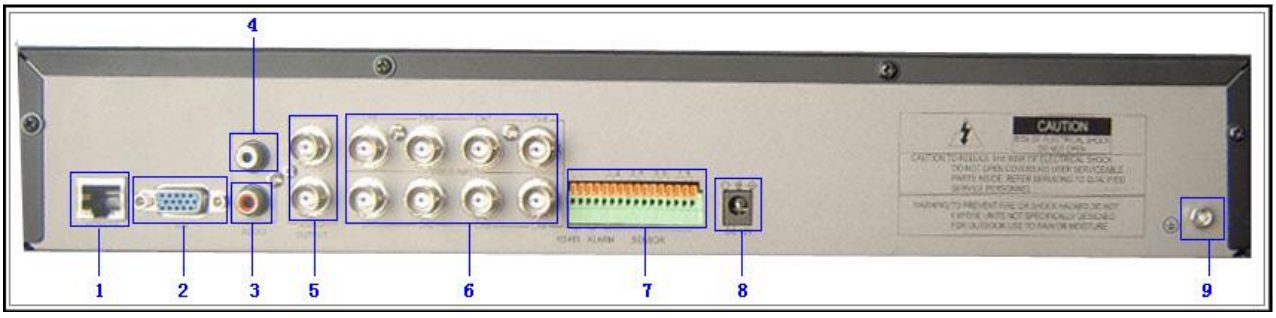
2. Outlook

2.1 Front Panel



1 Full Screen	2 Channel Up	3 Channel Down
4 Quad View	5 All Channel	6 Enter/Exit Menu Setup
7 Move Prompt Up	8 Modify Item	9 Move Prompt Down
10 Record, Stop manual record or Reduce value		
11 Stop playing or dome running	12 Forward or Zoom+	13 Play or Focus+
14 Pause or Focus-	15 Rewind or Zoom-	16 Power Indicator
17 HDD Access Indicator	18 IR Window	19 Power Switch
20 USB Press-button	21 HDD Box Press-button	22 PTZ Switch
23 Active-handle	24 Radiator	25 Key Locker

2.2 Rear Panel



1. Network	2. VGA Output (Optional)	3. Audio Input
4. Audio Output	5. Video Output	6. Video Input
7. Sensor/Alarm/RS485	8. DC Input	9. Grounding

2.3 Remote Controller

1. FULL	One Channel View or Move Dome Up
2. ALL	All Channel View
3. UP CH.	UP Channel View or Move Dome Down
4. QUAD	Quad View or Move Dome Right
5. DOWN CH.	Down Channel View or Move Dome Left
6. REW	Rewind or Zoom-
7. PLAY	Play record or Focus+
8. FWD	Forward or Zoom+
9. RECORD	Record or Stop manual record
10. PAUSE	Pause or Focus-
11. STOP	Stop Playing or Dome running
12. PTZ	PTZ Switch
13. MENU	Enter or Exit Setup Menu
14. SEL/EDIT	Modify Item
15. UP	Move Prompt Up
16. DOWN	Move Prompt Down

2.4 Removable HDD Box Introduction

1. Power Indicator	2 .HDD Access Indicator
3. Key Lock	4 .PVC Frame
5. Active-handle	6. Radiator
7. HDD data cable	8 .HDD power cable

3. DVR Installation

3.1 Install Hard Disk

Fig1

Slide the carrier body out of the cartridge frame (Fig1)

DON'T take out HDD when DVR running!

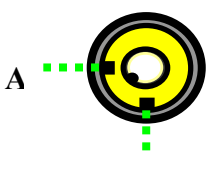
Fig2

Connect the HDD data cable and the power cable to the HDD (Fig2)

Fig3

Push carrier body further into cartridge frame until fully inserted (Fig3)

(HDD is recommend to be provided by user)



Key Locker

A: Locked (Non-removable)

B: Unlocked (Removable)

3.2 Connect Camera and Monitor

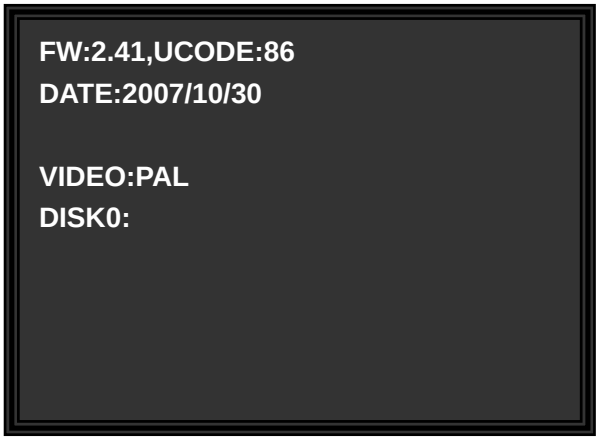
There are eight cameras input and two monitors output with BNC connector.

3.3 Connect Power Cord

Please use the power adapter supplied with DVR.

4. DVR System Boot

4.1 Detect Installed Hard Disk



After connecting the power, system will boot-up firmware, date, video and detect installed hard disk. Master and Slave hard-disk information will show up on monitor.

Please make reference to hard disk manual to configure hard disk sequence. (Master or Slave)

Notice: When user only uses one hard disk drive, make sure the HDD is master HDD.

4.2 Main Screen

Firstly, start the DVR system. DVR will be sense of eight cameras shown on the monitor.

Name:(CH1 ～ CH8).

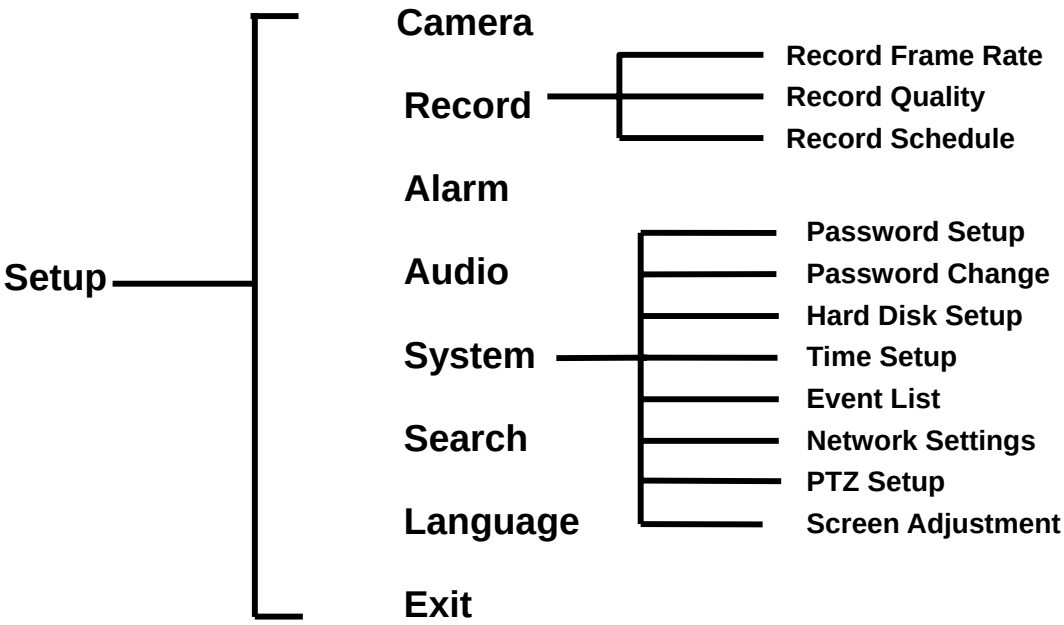
Bottom right→Date and Time shown on there. DVR is waiting for key function,

Press "Menu" into DVR setup process.

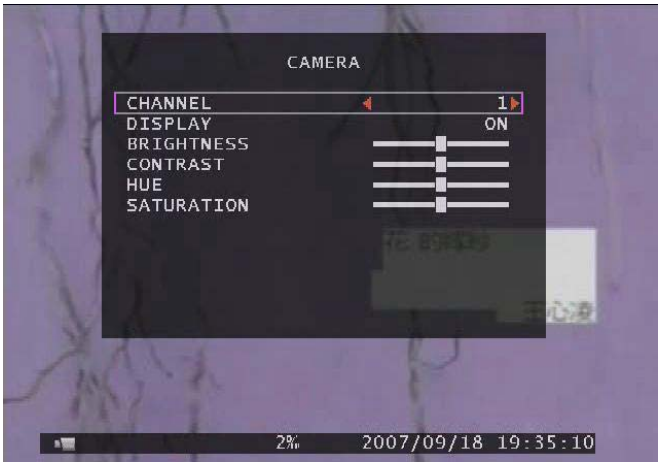
5. DVR Setup

Press "Menu" into setup menu, use "Up" and "Down" to select item, then press"Select" to modify setting and "Menu" to confirm and exit.

Menu Directory



5.1 Camera



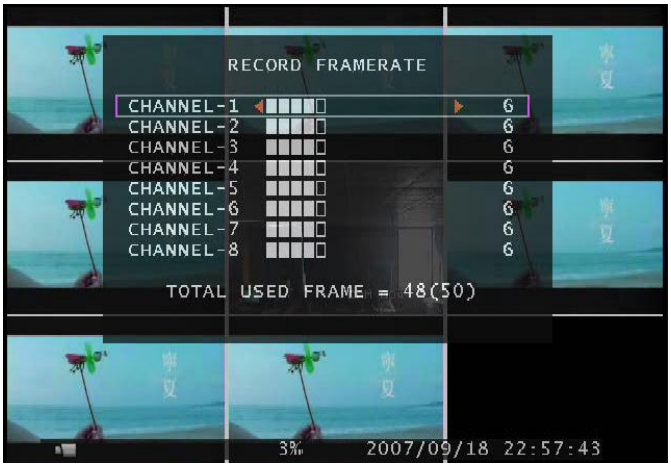
DVR system can display eight cameras and videos in one picture. User can configure which camera to display. If the order of "Display" for one channel is **OFF**, system will display black on monitor.

Press「Up」 or 「Down」to move the prompt. Press「Select」 or 「REC」 to modify setting. The button 「Select」can increase value and the button 「REC」can reduce value.

5.2 Record

Press「Up」or「Down」to move the prompt. Press 「Select」to enter each sub menu, and press 「Select」 or 「REC」to modify each parameter.

5.2.1 Record Framerate



Record frame rate will affect the movement of object in recorded video. More frames means more smooth movement and cost more hard disk space. System default value is **48** FPS. That means system will record 48 frames per second. Total used frame is 50 FPS. That means system can record 50 frames per second at most.

5.2.2 Record Quality

There are three level of record quality, **High, Normal** and **Low.** Higher quality cost more hard disk space. In Chinese captions the best record quality is three, and the worst record quality is one.

Record frame rate, record quality and hard disk space will affect total record time of DVR system.

5.2.3 Record Schedule

User can setup video record method by time, sensor triggered, motion triggered or motion &sensor triggered.

Notice: To start motion record, make sure the period that you intend to record is "" in the "record schedule" menu. To start sensor record, make sure the period that you intend to record is ""in the "record schedule" menu. And to start motion & sensor record, make sure the period that you intend to record is ""in the "record schedule" menu.

Press 「Up」 or 「Down」to move the prompt ,and press「 SEL」to select video record method.

User can press the button 「ALL」to set up the same record method during the whole time.

λ " " Manual Record(System Default)

λ " " Time Record.

λ " " Motion Triggered.

λ " " Sensor Triggered.

λ " " Motion & Sensor Triggered.

Cooperate with many kinds of external sensor equipment like PIR, Gas sensor. DVR will not record video until external sensor was triggered and output signal to notify DVR during this specified period of time.

5.3 Alarm

The order of "Alarm duration" & "Buzzer duration" has "OFF, 05,10,15,20,25,30 and CONT" to select, and the order of "Event REC Duration" has "05,10,15,20,25,30" to select. User can press [Select] or [REC] to set the time.

ALARM DURATION

It controls how long (in seconds) the alarm lasts after the system is triggered.

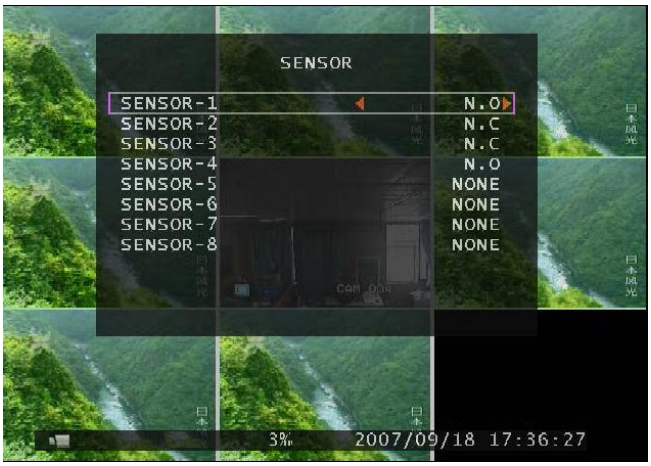
BUZZER DURATION

When Buzzer Duration is "OFF", all the buzzers will be shut off. When "Buzzer Duration" is "CONT", the buzzer will work continuously.

EVENT REC DURATION

The number indicates how long triggered recording lasts after the sensors are triggered or the movements in front of the camera.

5.3.1 SENSOR



There are three different modes for sensor setting**: NONE & N.C & N.O.**

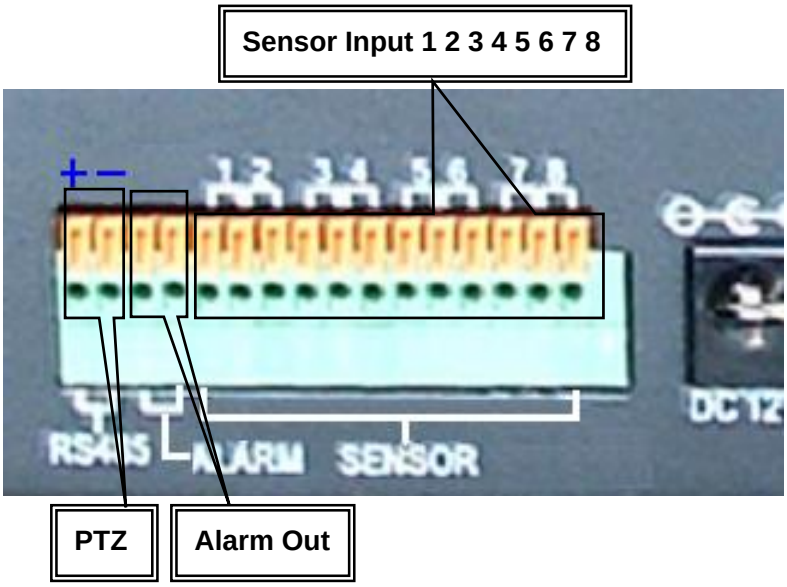
NONE means **NOT INSTALLED,**

N.C means **NORMAL-CLOSE,**

N.O means **NORMAL-OPEN.**

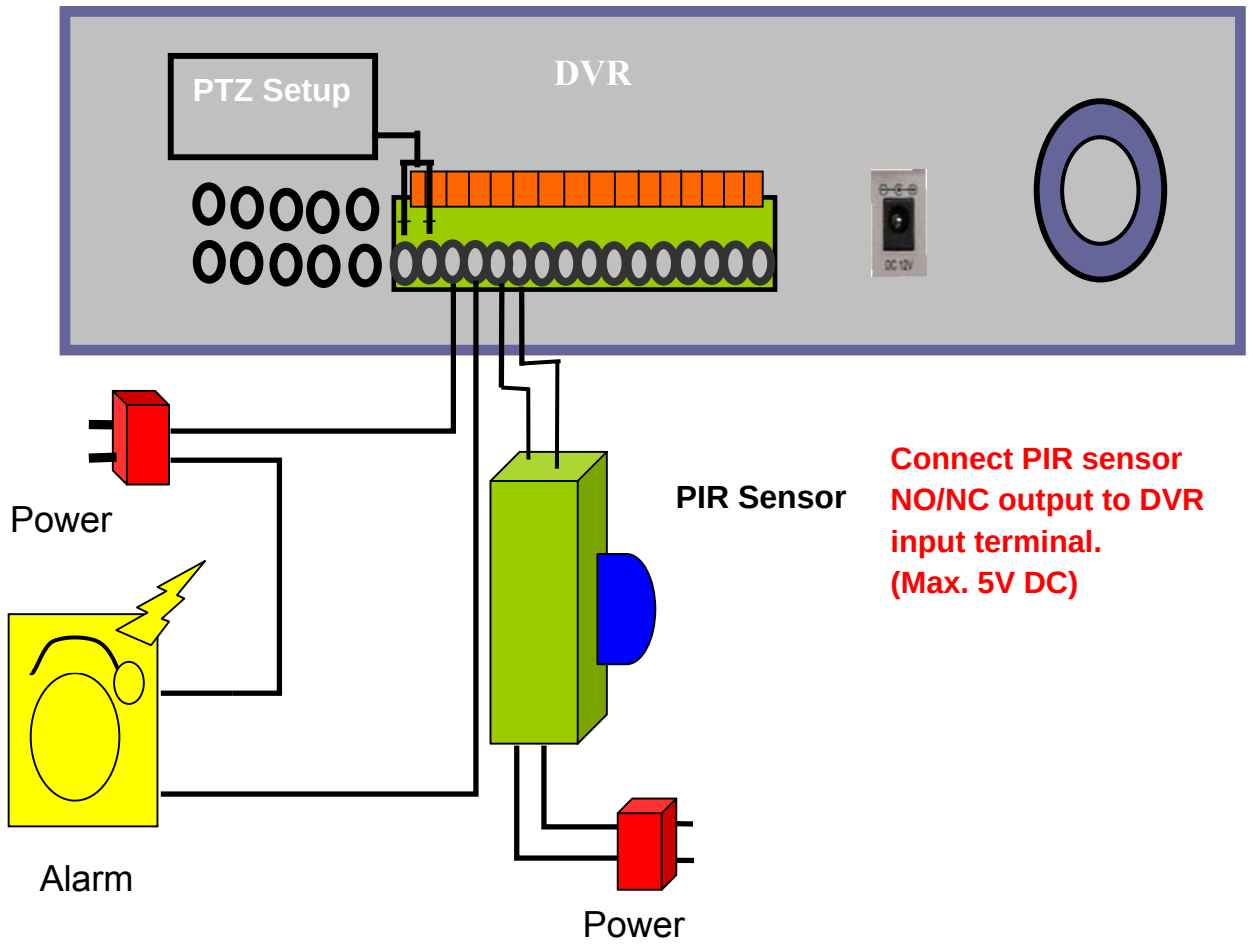
It depends on what type of external sensor you use. If sensor's output is N.O, then select N.O mode in DVR.

If sensor triggered by an intruder, then the cable line connects to DVR input terminal will notify system to start recording. There are eight pairs of input terminal supported by DVR.



* **Push the UNLOCK BUTTON to insert and pull out the wire**

Install example diagram:



5.3.2 MOTION

The first step, User need setup video record method by Motion Triggered. Please make Reference to 5.2.3.

CHANNEL 1~8 SENSITIVITY:

User can press [↵ Select] or [REC] to adjust sensitivity grade of motion detection.

High (1----------4,OFF) Low

When it is set to "OFF", the channel can't be trigger by movement.

CHANNEL 1- 8 AREA SET:

Press "↵ Select" to enter motion area setting state, and then press "↵ Select" to set the block is active or not. Press "↵ Select" once to pitch on the area, press "↵ Select" twice to cancel the area. Press "CH1" to move the prompt up, press "CH2" to move down, press "CH3" to move left, press "CH4" to move right. By the way, the area only can be selected from up to down and from left to right. When the block is covered by blue shadow, it's active to record. When the block is transparent, it can't be recorded.

After completed the motion area setting, press "MENU" button to exit.

To start Motion Record, User must complete the "Motion area".

5.4 AUDIO

Press 「Up」 or 「Down」 to move the prompt ,and press「↵ SEL」or 「REC」to adjust each parameter.

When the order of "Record" is "ON", audio channel can be record. When the order of "Record" is "OFF", audio channel can't be record.

When the order of "MUTE" is "ON", the audio output will be shut off. When the order of "MUTE" is "OFF", the audio output will be turn on.

Input volume and output volume can all be adjusted.

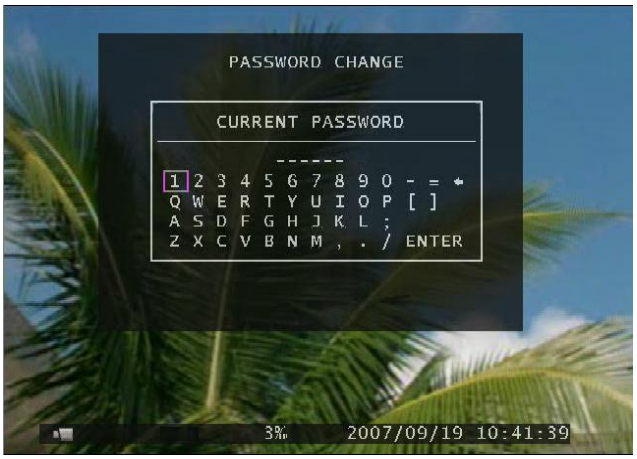
5.5 SYSTEM

Press 「Up」 or 「Down」 to move the prompt ,and press「↵ SEL」to enter each order.

When the order of "password setup" is " ON", stop record or enter menu will need password.

And if the order of "password setup" is "OFF", all operation won't need password except formatting HDD.

5.5.1 Password Change



Press 「↵ SEL」to enter "password change" setup. Press 「↵ SEL」to input value, and then move the prompt to the option of "ENTER", press 「↵ SEL」to input current password. And the same operation measure to input new password and confirm password.

All numbers, letters and sign in the pane can be used as password. The **default password of System** is **pressing six times of "1".**

5.5.2 Hard Disk Setup

OVERWRITE ENABLE:

If you choose **ON**, the recording continues and overwrites previous recording when hard disk drive space is full.

If you choose **OFF**, the recording session stops when all hard disk drive is full for recording.

FORMAT HDD:

If you format the hard disk, it will erase all the data recorded on the master HDD and the slave HDD.

SIZE

It shows the size of the current hard disk drive installed in the DVR.

USED

It shows the space used on the current hard disk drive for recording and the percent of the used hard disk.

Notice: When you first use a HDD in the DVR, please use this function to format the HDD, otherwise the data of the HDD will slip a cog possibly.

5.5.3 Time Setup

Press「 Up」and「Down」to move prompt and press「 Select」or 「REC」to modify. User can select time zone. After confirming time zone, configure DVR system time. Move the prompt to the order of "APPLY", and then press to confirm.

When "SYNC. FROM NTP SERVER" is "YES", DVR system time will be in-phase with NTP server.

When "SYNC. FROM NTP SERVER" is "NO", DVR system time will be asynchronous with NTP server.

5.5.4 Event List

In the menu of "**EVENT LIST**" user can look over annals of all recorded video, start time and end time of each recorded video.

Press「CH1」or 「CH2」to change page, press 「 Up」and「Down」to move prompt.

If user uses IDE HDD, all the HDD connected to the DVR can be storage 250 pieces of events at most.

If user uses SATA HDD, each HDD connected to the DVR can be storage 250 pieces of events separately at most.

Note: -Manual Record; -Time Record; - Motion Triggered Record; -Sensor Triggered Record; -Motion & Sensor Triggered Record.

5.5.5 Network Settings

In the menu of "Network Setting", user can set up "local IP, port, password, name server and video quality".

Video quality includes highest, high, normal, low and lowest.

When the order of "network" is "ON", user can connect the DVR to PC. If the order of "network" is "OFF", the DVR can't be connected to PC.

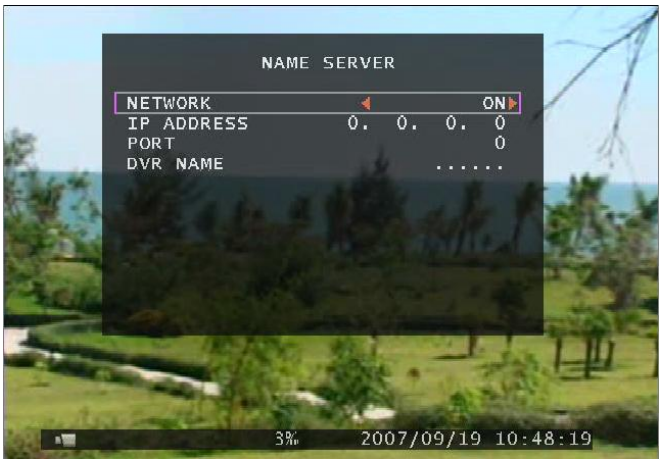
5.5.5.1 Local IP

In the menu of "Local IP" user can set up IP type. IP type includes static, DHCP and PPPOE.

If IP type is static, user can adjust the order of "IP address, gateway and net mask".

If IP type is PPPOE, user can adjust the order of "PPPOE ID and PPPOE password".

5.5.5.2 Name Server



Press 「Select」button to enter "Name Server", on the menu bar the order of "Network、IP Address、Port and DVR Name" can be modified. Press「Up」and「Down」to move prompt. Press 「Select」to enter into each submenu. Press「Select」or 「REC」to modify value.

5.5.6 PTZ Setup

Press「Select」button accessing to "PTZ Setup". Now user can select channels that he wants to set.

Then we can see the diagram that is on the left. For example, we select the channel 1 to set up. Dome's address is 4. Protocol makes use of **PELCO-D**. Baud rate is 2400 and Dome's speed is 7.

ADDRESS: Dome's address "**0**-**255**" (**PELCO-D**) and"**0-31**" (**PELCO-P**).

PROTOCOL: Including "**PELCO-D**", "**PELCO-P**". Setting the protocol according to the dome's protocol.

BAUD RATE: Press "**EDIT**" button to select the value **1200**,**2400**,**4800**,**9600**,**19200**bps.

SPEED: Having "**1-10**" to select.

PRESET: If protocol is **PELCO-D,** preset includes "**1-32**"**.** If protocol is **PELCO-P,** preset includes "**1-255**"**.** When it displays **0**, it suggests that the place's preset is not using.

Button function:

「Select」:Make sure the setting.

「Up」「Down」:Move the cursor.

「SEL」:Increase Value.

「REC」:Reduce Value.

「Ch1」「Ch2」: Move the dome upwards and downwards.

「Ch3」「Ch4」: Move the dome leftwards and rightwards.

「STOP」:Stop the dome running.

「REW」「Fwd」:Zoom.

「Pause」「Play」: Focus.

Preset setup

User must set preset at first. The address, protocol and baud rate of DVR is consistent with Dome's.

You can make use of buttons to control dome and save the preset.

If user wants to call preset, user can modify the value of preset to come true. Press「Select」button to finish the order of "call preset".

User can perform auto scan when he saves the presets within cruise locus. Then he needs to press 「Select」button to finish the order of "auto scan", the dome will run all along unless user presses 「STOP」button to stop it.

Attention

User can start-up automatic scout in "PTZ SETUP" menu or PTZ mode. It doesn't stop when user exits.

If user wants to stop scouting, press 「STOP」button in PTZ SETUP menu or PTZ mode.

During live view, user can press「PTZ」button to enter PTZ SETUP, and then user can operate to control the dome according to the method of above paragraphs.

5.5.7 Screen Adjustment

Press「Select」button accessing to " Screen Adjustment". Press 「CH1」button to move the screen up, press「CH2」button to move down, press「CH3」button to move left, press「CH4」button to move right.

5.6 SEARCH

Press the button「SEL」to enter " Time Search", on the menu user can look over start time and end time of all recording. Press 「SEL」to enter option of time to adjust the time you want to search. Finish adjusting time, press「MENU」to confirm. Then press 「Play」directly . Or press the prompt to the order of "Search" , and then press 「SEL」.

If the time is within recording range, wait for a moment it will play from the time you searched. If the time goes beyond recording range, it will display black on the screen.

5.7 LANGUAGE

Press the button 「Select」to change language.

5.8 EXIT

Press「Select」button accessing to " EXIT", and press 「UP」or 「DOWN」to move the prompt, then press 「Select」to confirm.

When choose the order of "Exit & Save Changes", it will come back to live view and the setting will be saved.

When choose the order of "Exit & Save Changes", it will come back to live view and the setting won't be saved.

When choose the order of "Load Setup Default", all settings will be restored factory default except time.

5.9 NTSC/PAL Output Select

Change jumper JS1 to select NTSC or PAL video output format according to the silkscreen on the PCB.

Note: please unplug the power cord first.

6. Record

6.1 Start Recording

Press " ● Record" to start recording. System will display some information on Screen.

Note: When the DVR is recording, user can play back or handle menu bar simultaneously.

① Channel Name

② ●Recording Symbol

③ Hard Disk Usage Ration

④ The time and date of the DVR

⑤ Video Symbol

Notice: When HDD-error happens during recording process, system will automatically restore recording process after power comes back up.

6.2 Stop Recording

If user startup manual record, press "●REC" to stop recording. If user startup schedule record, he can enter the menu bar "Record Schedule" to select "No Record" to stop recording. And if the order of "Password Setup" is **ON,** system will prompt to input password. Only correct password can stop recording process.

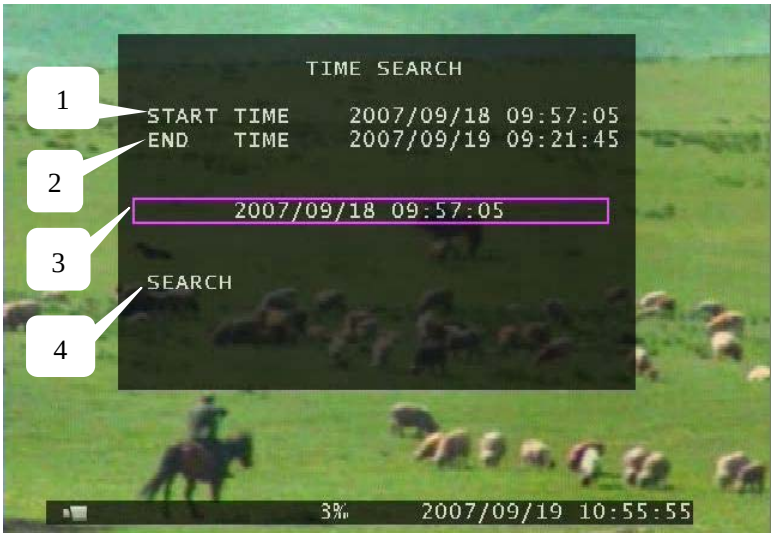
6.3 Recording Length

The lengths of record time based on 250G HDD are estimated as follows, using eight cameras:(just for reference)

Format	Record Quality	Record Frame Rate	Data Rate (GB/Hour)	Record Time (Hour)
PAL	High	50F/Sec	5.85	43
	Normal		4.59	55
	Low		2.48	101
NTSC	High	60F/Sec	4.67	53
	Normal		3.59	69
	Low		2.38	105

7. Playback

Press " Play" then system will list the time of all videos from HDD. Press " Select" and then press " Up" and " Down" to move prompt. Press " Select" to edit time value and press " Menu "to confirm. Then press " Play" to play video.

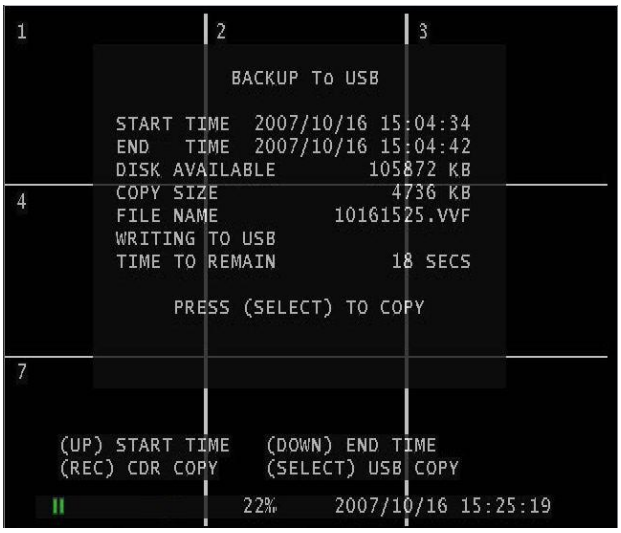


1. Start time of all recorded video	**2. End Time of all recorded video**
3. The time to start play video	**4. Search video of playback**

Another way to search video is directly entry main menu to select the order of "Search".

8. Backup

During playing back recorded video, user can backup. Press「MENU」, then press 「UP」 to select start time and press [DOWN] to select end time. After setting the time of backup, press [SELECT] to enter into next interface. Press [Select] to start copying. During backup "Writing to disk" is always displaying in the menu. After complete backup there will be a piece of suggestive message.



"Complete", press 「MENU」to return to live view.

Note:

Before backup, user must stop recording firstly.

Complete backup once, user must pull out USB disk. If user wants to backup over again, he must plug into USB disk again.

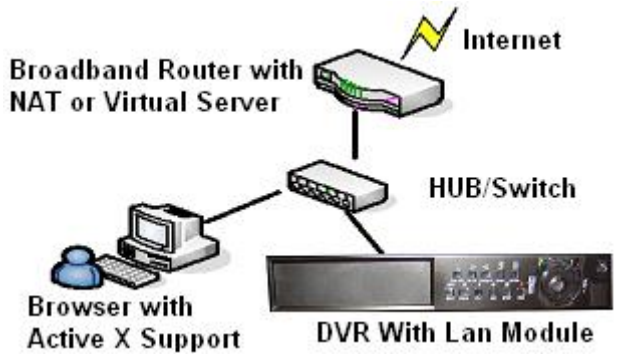
9. Network

9.1 Hardware Install

If you use Static or DHCP IP method:

A. Connect the DVR to HUB/Switch via Cat network cable.

B. Connect a PC to HUB/Switch via Cat network cable.



IF you use PPPOE IP method:

Connect the DVR to ADSL/CABLE modem directly.

9.2 Setup IP address of DVR

Press 「MENU」to enter "SETUP", move the prompt to the order of "System". Then Press 「SEL」to confirm. On the menu of "System" enter the menu bar of "Network Settings", choose the order of "Local IP" to setup.

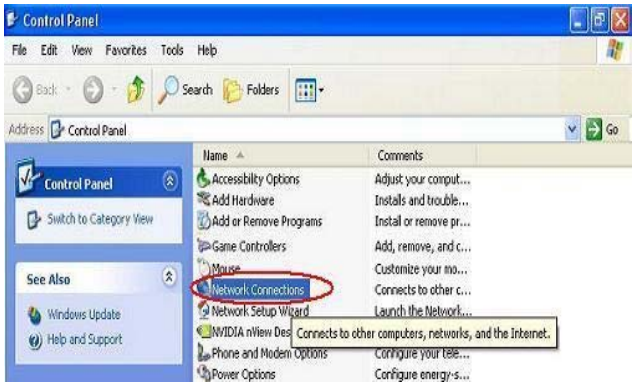
9.3 Configure IP address of PC

If IP address of DVR is "**192.168.1.161**", "**IP Type**" is "**Static**" and "**Gateway**" is"**192.168.1.1**". User must manually configure IP address of PC to connect DVR.

For example: Configure PC address as 192.168.1.171.

- **Windows XP:**

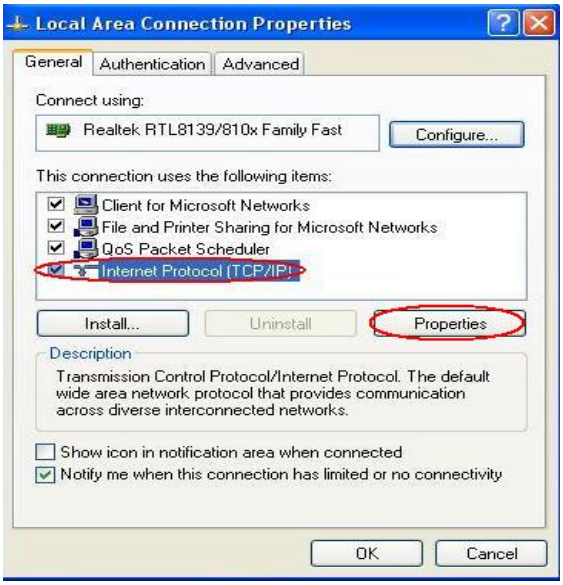
Click "Start"→ "Settings"→ "Control Panel"→ "View"→ Double click the "Network Connections " icon.

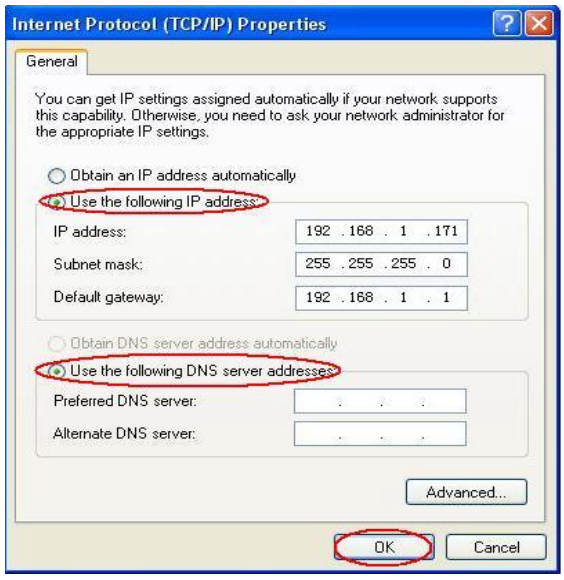


Find "Local Area Connection" and Right Click and select "Properties".

Find "Internet Protocol [TCP/IP]" and click "Properties". Select "Use the following IP address" and "Use the following DNS server address", and then input IP value.

Finally, Click "OK" to Save Change.





Note: Before connecting network make sure the order of "**Network**" is "**ON**" on the menu "**Network**

settings".

9.4 Connect PC to DVR—Net Viewer

9.4.1 Install

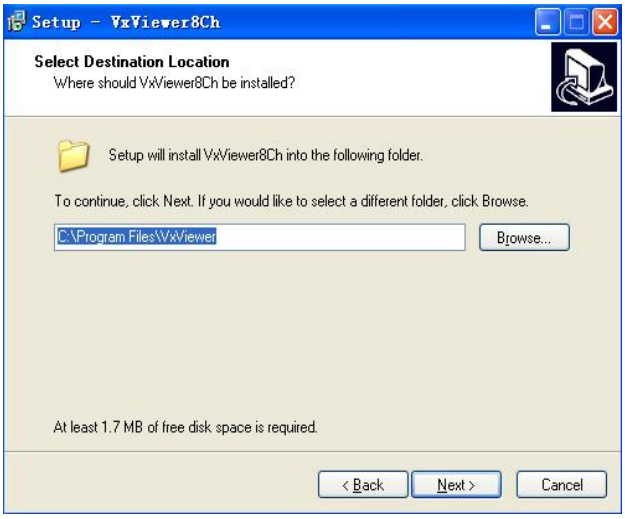
1. Put the Driver Program CD in your CD-ROM.

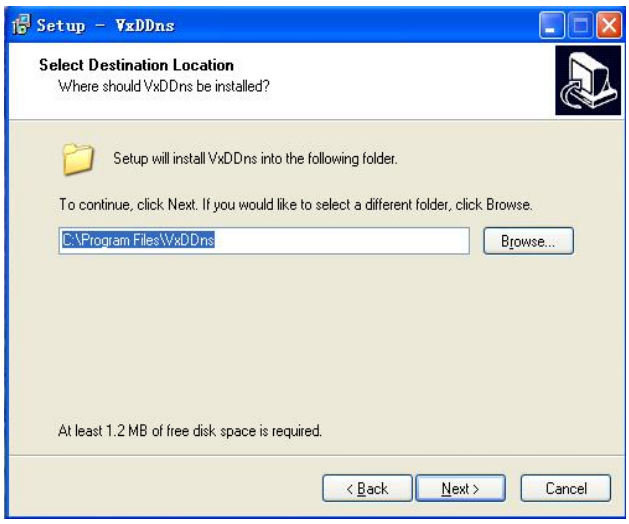
1. Go for installing by setup.

2. Set up the install directory.

3. Execute: 1.Start >Program> VxViewer8Ch.

   2.Start>Program> VxDDns.

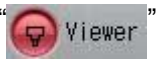




9.4.2 Program Interface

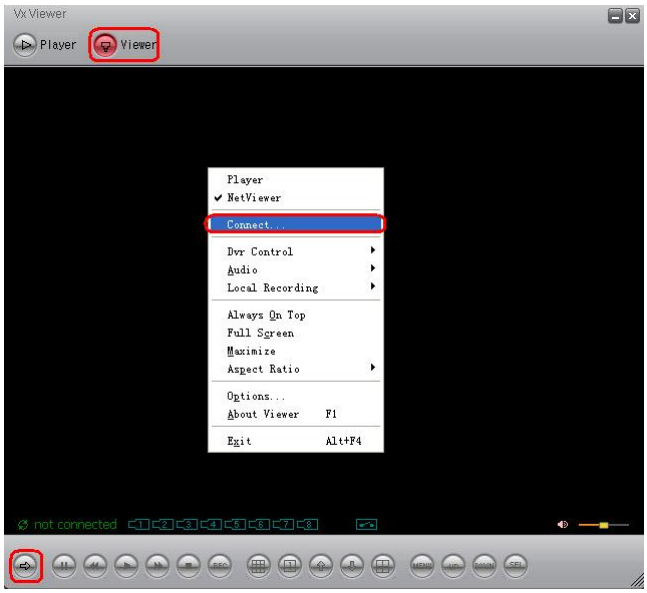
A: Run Vxviewer8Ch.

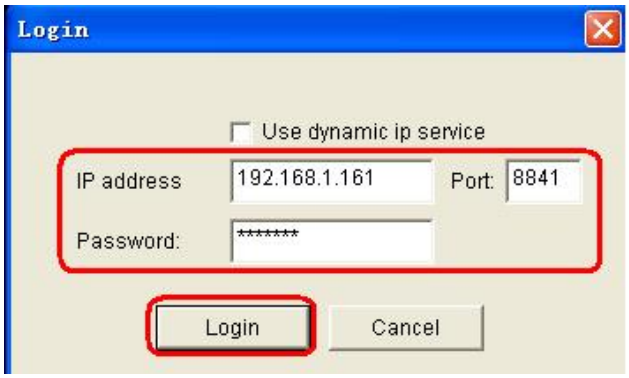
1. Double click " " icon on desktop to run the program**.**

2. First make sure the button " 

" is red. Then Click "⇨ " icon or click the right button of the mouse and click the option "**Connect…** ", there will be a dialog box for logon. To input IP address, port and password according to the order of "Local IP" of DVR in the dialog box. For example, "IP Type" is "Static", "IP Address" is "192.168.1.161", "Gateway" is "192.168.1.1". Then click the button "Logon" to enter into live view.

When browser net viewer, user can click the buttons on the interface to control DVR.





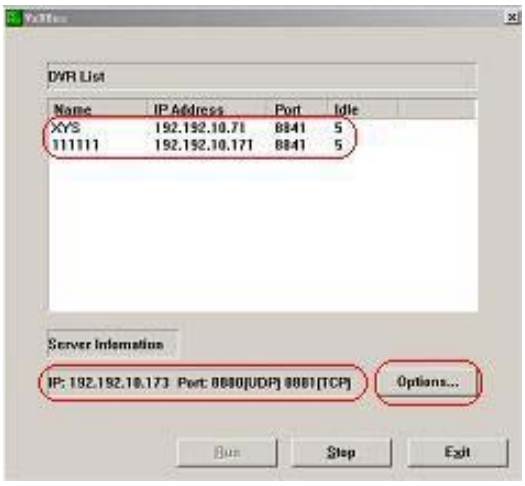
B: Run VxDDns.

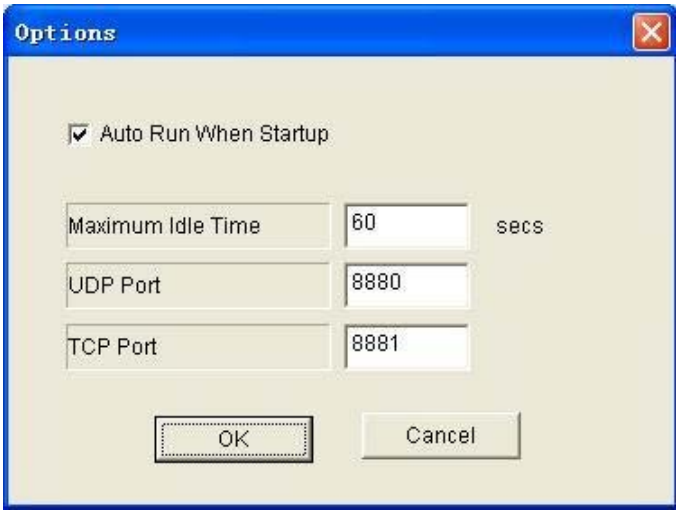
Make use of VxDDns, user can connect synchronously many DVRs to one PC.

First set up DVR, enter menu bar "**Network Settings**", adjust "**Network**" is "**ON**", select order of "**Name Server**". On the interface of **"Name Server**", make sure "**Network**" is "**ON**", "**IP Address**" is the PC which is connected to the DVR, **"Port"** is **UDP port,** setup **"DVR Name".**

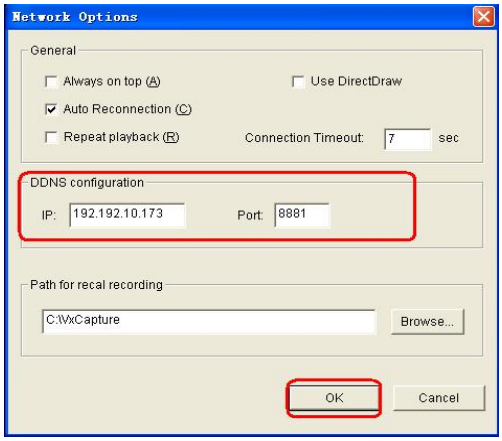
For example, connect two DVRs to one PC, PC's IP address is **192.192.10.173**, **UDP port** is **8880**, **TCP port** is **8881**, one DVR's name is **XYS**, another's is **111111**.

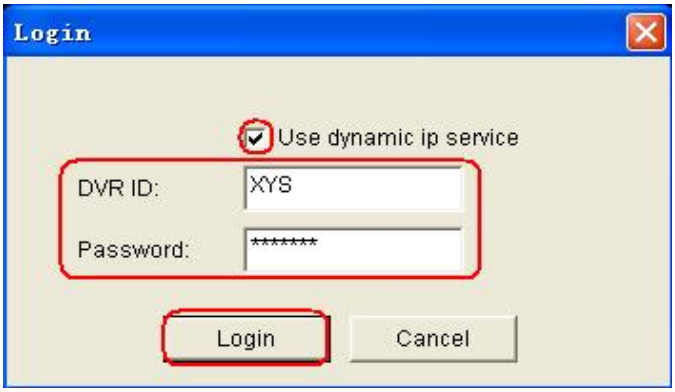
1. Double click " " icon on desktop to run the program**.** Then click the button "**Options…**",in the dialog box, input "**UDP Port**" **8880** and **"TCP Port**" **8881**. Then click "**OK**" →"**Run"**. Connect successfully, user can look over some messages of DVR which is connected to PC.





2. Double click " " icon on desktop to run the program**.**
3. First make sure the button " " is red. Click "the right button of the mouse" →"**Options…**". In the bar of "DDNS Configuration" input IP and port. IP is PC's IP (**192.192.10.173**) connected to the DVR, port is TCP port (**8881**). Click "**OK**". Then Click " ⇨ " icon or click the right button of the mouse and click the option "**Connect…** ", there will be a dialog box for logon. Click "**Use dynamic ip server**", input DVR ID and password. DVR ID is DVR's name connected to PC, password is the order of "**password**" in the menu bar "**Network Setting**".
4. After log in successfully, user can enter live view of DVR and control the DVR long-distance.





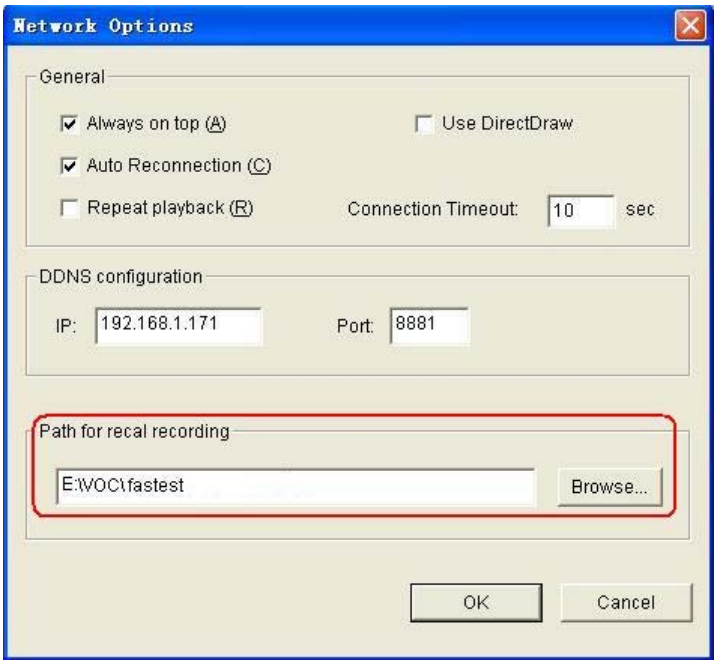
9.4.3 Button Function

1. Connect/Disconnect	**2. Pause**
3. Rewind	**4. Play**
5. Fast forward	**6. Stop playing or Dome running**
7. Record, Stop manual record or Reduce Value	**8. Split 9**
9. Channel 1	**10. Channel Up**
11. Channel Down	**12. Split 4**
13. Enter or Exit Setup Menu	**14. Move Prompt UP**
15. Move Prompt Down	**16. Modify Item or Increase Value**
17. Volume	**18. Minimize the window**
19. Close the window	**20. Mute On/Off**

9.4.4 Local Recording

User can save current view into PC.Click→"**Start Local Recording**" to start recoding.

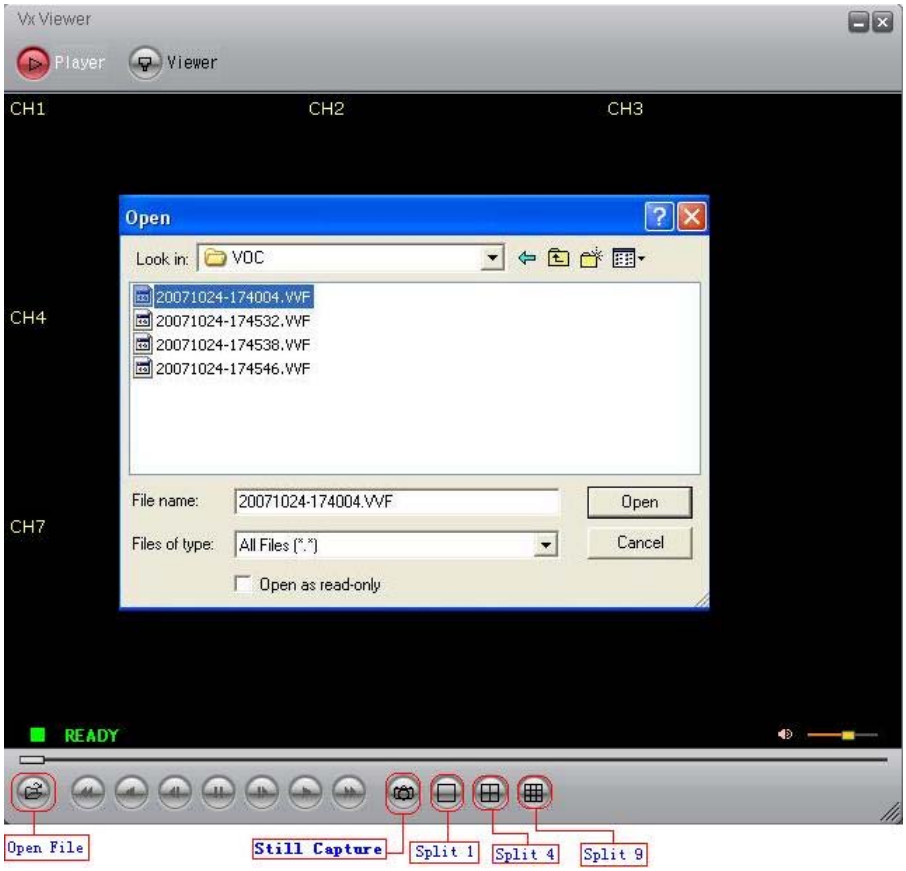
According to the following method to setup storage path for recording. Click "the right button of the mouse"→ "**Options…**". In the bar "Path for local recording" setup.



9.4.5 Play Local Recording

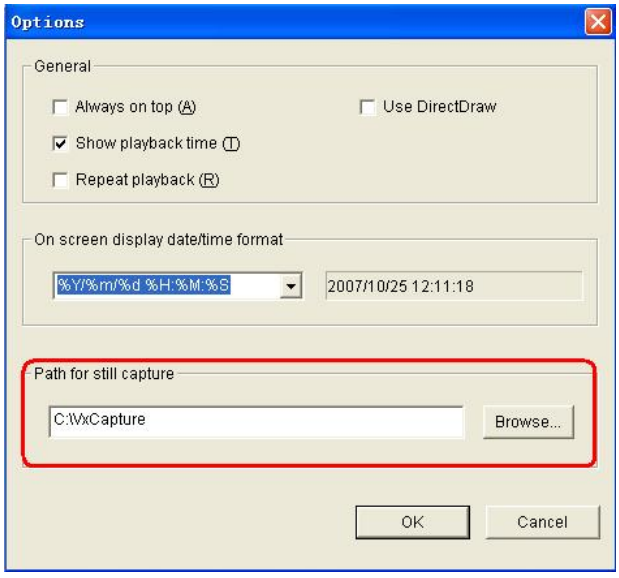
Click "

" to change to the Player mode. Then click " " to play the video in ""VVF" format.



Still Capture

In the player mode, click the right button of the mouse to select "Options…" to setup path for still capture.



9.5. Connect PC to DVR — IE Browser

At first please turn all the **Active X option ON** at IE Internet safety setup. Select menu setup to enable the **Active X option.**

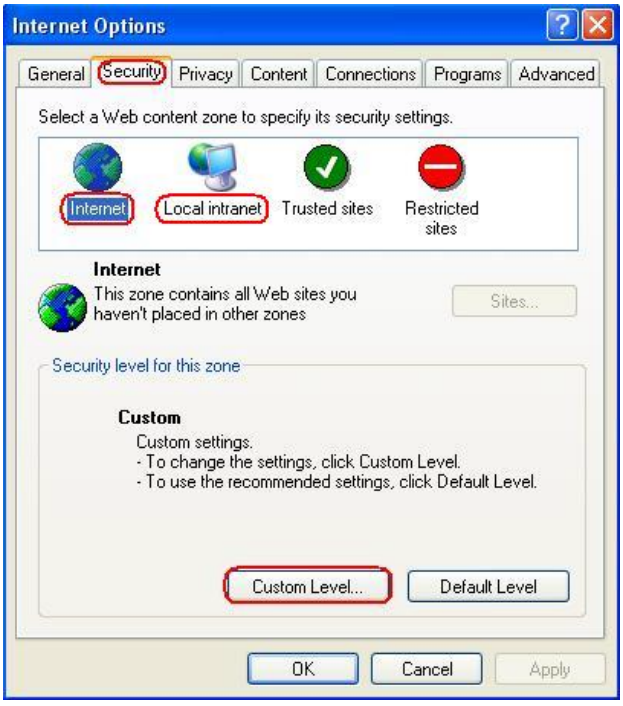
Network module use Active X applet to display remote image. Any web browser with Active X support can connect to DVR.

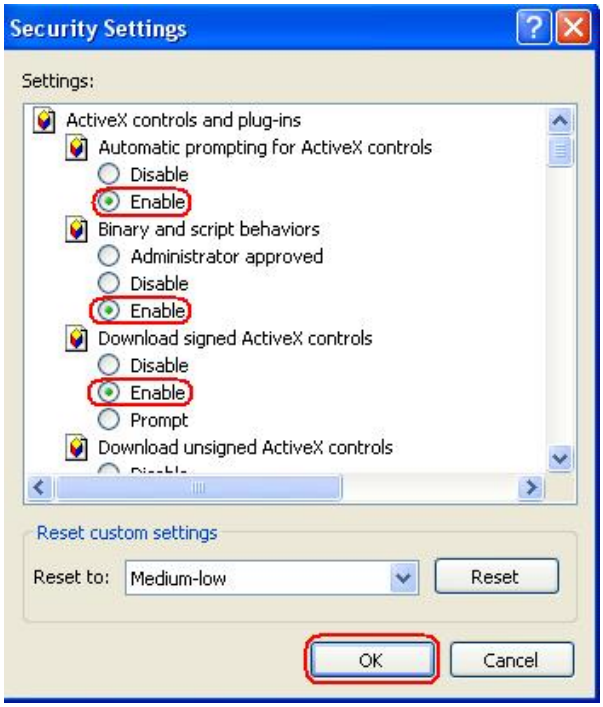
Click "Start"→ "Program" →"Internet Explorer" →"Tools" →"Internet Options…".

Click "Security" → "Internet" →"Custom Level…".

Click "Security" → "Local intranet" →"Custom Level…".

Make sure all the ActiveX controls and plug-ins are in "**enable**" mode. Click "OK".

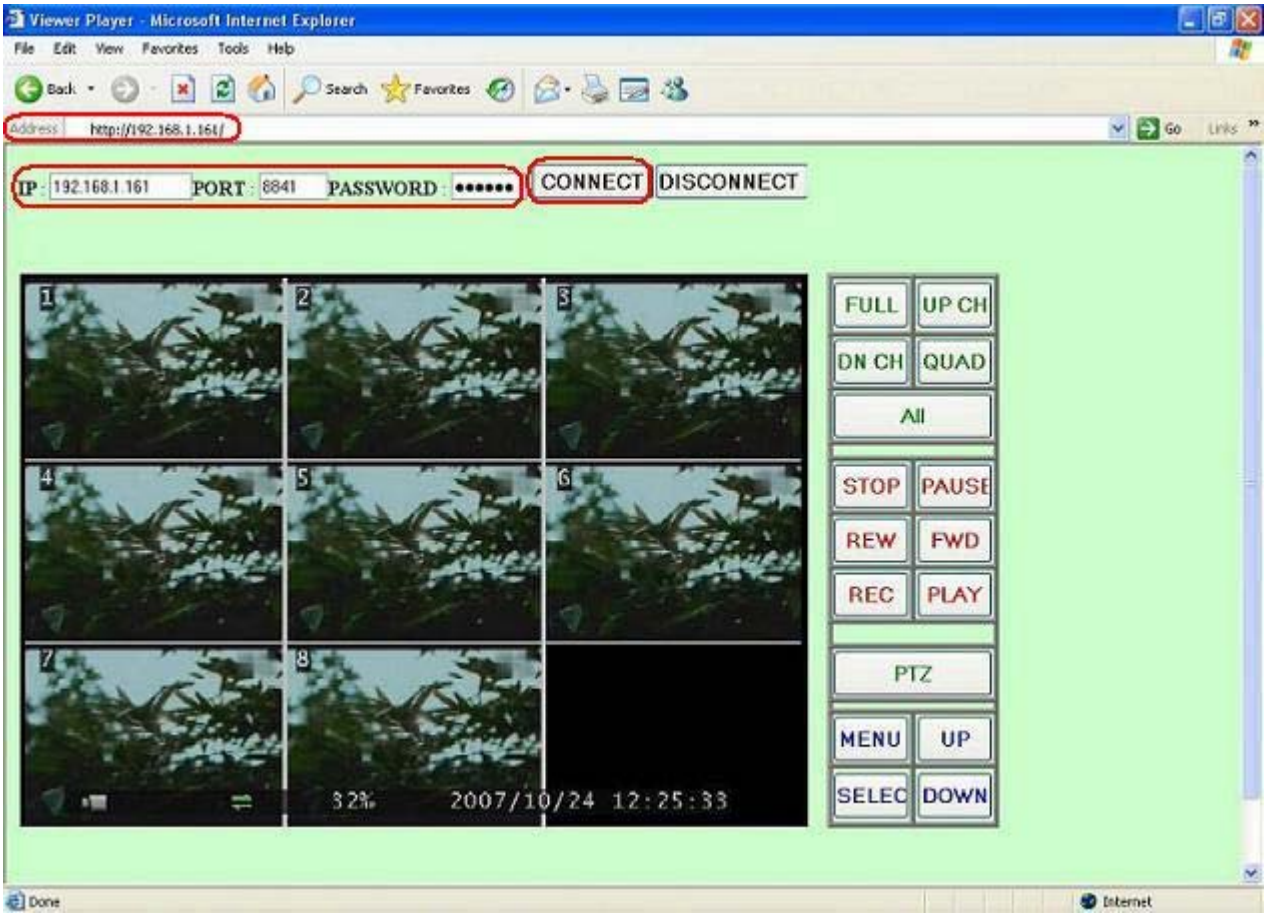




Open IE browser and input IP address of DVR in address bar. Press "Enter " to connect PC to DVR.

In the interface of "Viewer Player", input "**IP**"、"**PORT**"、"**PASSWORD**" of DVR, then click "**CONNECT**" to enter live view of DVR. Click buttons on the right to control DVR directly though network.

NOTE: All the button functions on the right are the same as DVR's.



10. Specification

ITEM		DESCRIPTION	NOTE
Video Format		NTSC / PAL	
Operation System		None	STAND-ALONE
Camera Input Channel		8 channel Composite BNC	
Video Output Channel		2 channel Composite BNC	
Recording Frame Rate	NTSC	Max 60 fps (Total)	Max. 30 frames/s (Each Channel)
	PAL	Max.50 fps (Total)	Max. 25 frames/s (Each Channel)
Record Mode		Time schedule, Motion detection, Sensor activated, Motion detection & Sensor activated	
Resolution	Display	NTSC：640 x 448 PAL：640 x 544	
	Recording	NTSC：640×224（Half D1） PAL：640x272（Half D1）	
Compression Method		Enhanced MJPEG (12-20K Bytes/frame)	Video Quality: Low@12K Bytes; Normal@ 15K Bytes; High@20K Bytes
HDD Support		Over 500G Byte	ATA -100 Interface HDD×2
Estimated Record Length		120G Hard disk @ 50 fame per second @ Normal Quality (120*1024*1024 K byte) ÷ (50*15*60*60) = 46 Hours	
Search	Method	Time、Event	
	Full Screen	YES	
Sensor, Alarm		8 Input (Normal Open / Normal Close) 1 Output (20 Pin DIP Switch) Camera Signal Loss Alarm 2 Pin for RS485 control Pan/Tilt/Zoom	
PTZ		YES	PELCO-D PELCO-P
USB		YES	USB 2.0 For media Backup
VGA		Optional	800*600,1024*768, 1280* 1024
Dimension		Length 400mm * Width 276mm * Height 69mm	

11. Appendix

11.1 System Connect Sketch Map

11.2 Fittings Come Along With DVR

Power Adapter

Remote Control